CLAIMS

What is claimed is:

1. An apparatus, comprising:

a Switch configured to couple a first fabric having a first set of end devices and a second fabric having a second set of end devices, each of the first set of end devices and the second set of end devices having a unique Domain_ID address respectively, the Switch configured to enable communication between the first set of end devices in the first fabric with the second set of end devices associated with the second fabric while maintaining the unique Domain ID addresses of the first set of end devices and the second set of end devices.

2. The apparatus of claim 1, wherein the first and second fabrics are first and second Virtual Storage Area Networks (VSANs) respectively.

3. The apparatus of claim 1, wherein the first fabric and the second fabric are separate physical fabrics.

4. The apparatus of claim 1, wherein the Switch is a Border Switch that is part of both the first fabric and the second fabric, the Border Switch configured to inject frames of information between the first fabric and the second fabric to enable communication between members of the first set of end devices and the second set of end devices.

5. The apparatus of claim 1, wherein the first fabric and the second fabric are Edge fabrics and further comprising a Transit fabric configured to carry traffic between the first fabric and the second fabric.

6. The apparatus of claim 1, wherein the first fabric and the second fabric are adjacent to each other and the Switch is configured to directly switch traffic between end devices in the first and second fabrics.

7. The apparatus of claim 4, wherein the Border Switch is configured within an Inter-VSAN zone, the Inter-VSAN zone including members from the first set of end devices associated with the first fabric and the second set of end devices associated with the second fabric.

8. The apparatus of claim 7, wherein the Border Switch determines via the Inter-VSAN zone:

(i) the content of a name server database that is exported from one of the adjacent fabrics to the other and vice versa;

(ii) the set of FSPF domains to export in Link State Update (LSU) messages;

(iii) the set of addresses to switch from one of the adjacent fabrics to the other and vice versa; and

(iv) the set of adjacent fabrics to which SW_RSCNs received from a fabric are propagated and vice-versa.

9. The apparatus of claim 4, wherein the Border Switch is further configured to perform one or more of the following:

(i) exchange Inter-VSAN routing protocol (IVRP) messages with other Border Switches in the first fabric and second fabric;

(ii) exchange Fabric Shortest Path First (FSPF) information between neighboring Switches in each fabric

(iii) propagate FSPF updates across the fabrics only if the updates affect routes and link cost to any of the exported Domain_IDs;

(iv) proxies as the name server in a first fabric for each Switch in the second fabric that is exported into the first fabric and vice-versa;

(v) rewrite the VSAN of a frame received from the first VSAN to the second VSAN if traffic is destined to the second VSAN; and

(vi) constrain control traffic including FSPF, zone server, and name server within a single fabric.

10. The apparatus of claim 7, wherein the Border Switch in the Inter-VSAN zone supports the definition and exchange of Inter-VSAN zones.

11. The apparatus of claim 7, wherein the name server database in the Border Switch is configured to perform one or more of the following:

(i) build the list of name server entries to be exported from a first fabric to the second fabric and vice-versa; and

(ii) proxy as the name server in a first fabric for each Switch in the second fabric that is exported into the first fabric and vice-versa.

12. The apparatus of claim 11, wherein the Border Switch is further configured to generate Switch Register State Change Notifications (SW_RCSNs) across the fabrics when the name server database changes.

13. The apparatus of claim 12, wherein the Border Switch is further configured to prevent the replication of RCSNs in one of the following ways:

(i) selecting a first Switch and a second Switch in the first or second fabric for distributing RCSNs in each fabric respectively;

(ii) statically configuring the fabrics; or

(iii) selecting a specified Switch to distribute the RCSNs.

14. The apparatus of claim 1, wherein the Switch enables communication between the end devices in the first fabric and the second fabric while maintaining the unique Domain_IDs of each of the first set and the second set of end devices by:

(i) administratively partitioning the domain number space across the fabrics; or (ii) associating a range of Domain_IDs to be used only for Inter-VSAN routing.

15. An apparatus, comprising:

a first fabric;

a second fabric;

a first set of end devices associated with the first fabric and a second set of

end devices associated with the second fabric, the first set and the second set of end devices each having a unique Domain ID address respectively; and

a communication mechanism configured to enable the first set of end devices associated with the first fabric to communicate with the second set of end devices associated with the second fabric while maintaining the unique Domain ID addresses of the first set of end devices and the second set of end devices.

16. The apparatus of claim 15, wherein the communication mechanism is a Switch configured to couple the first fabric and the second fabric, the Switch configured to enable communication between the first set of end devices in the first fabric with the second set of end devices associated with the second fabric while maintaining the unique Domain ID addresses of the first set of end devices and the second set of end devices.

17. The apparatus of claim 15, wherein the first and second fabrics are first and second Virtual Storage Area Networks (VSANs) respectively.

18. The apparatus of claim 15, wherein the first fabric and the second fabric are separate physical fabrics.

19. The apparatus of claim 16, wherein the Switch is a Border Switch that is part of both the first fabric and the second fabric, the Border Switch configured to inject frames of information between the first fabric and the second fabric to enable communication between members of the first set of end devices and the second set of end devices.

20. The apparatus of claim 15, wherein the first fabric and the second fabric are Edge fabrics and further comprising a Transit fabric configured to carry traffic between the first fabric and the second fabric.

21. The apparatus of claim 16, wherein the first fabric and the second fabric are adjacent to each other and the Switch is configured to directly switch traffic between end devices in the first and second fabrics.

22. The apparatus of claim 19, wherein the Border Switch is configured within an Inter-VSAN zone, the Inter-VSAN zone including members from the first set of end devices associated with the first fabric and the second set of end devices associated with the second fabric.

23. The apparatus of claim 22, wherein the Border Switch determines via the Inter-VSAN zone:

(i) the content of a name server database that is exported from one of the adjacent fabrics to the other and vice versa;

(ii) the set of FSPF domains to export in Link State Update (LSU) messages;

(iii) the set of addresses to switch from one of the adjacent fabrics to the other and vice versa; and

(iv) the set of adjacent fabrics to which SW_RSCNs received from a fabric are propagated and vice-versa.

24. The apparatus of claim 19, wherein the Border Switch is further configured to perform one or more of the following:

(i) exchange Inter-VSAN routing protocol (IVRP) messages with other Border Switches in the first fabric and second fabric;

(ii) exchange Fabric Shortest Path First (FSPF) information between neighboring Switches in each fabric;

(iii) propagate FSPF updates across the fabrics only if the updates affect routes and link cost to any of the exported Domain_IDs;

(iv) proxies as the name server in a first fabric for each Switch in the second fabric that is exported into the first fabric and vice-versa;

(v) rewrite the VSAN of a frame received from the first VSAN to the second VSAN if traffic is destined to the second VSAN; and

(vi) constrain control traffic including FSPF, zone server, and name server within a single fabric.

25. The apparatus of claim 23, wherein the Border Switch in the Inter-VSAN zone supports the definition and exchange of Inter-VSAN zones.

26. The apparatus of claim 7, wherein the name server database in the Border Switch is configured to perform one or more of the following:

(i) build the list of name server entries to be exported from a first fabric to the second fabric and vice-versa; and

(ii) proxy as the name server in a first fabric for each Switch in the second fabric that is exported into the first fabric and vice-versa;

27. The apparatus of claim 26, wherein the Border Switch is further configured to generate Switch Register State Change Notifications (SW_RCSNs) across the fabrics when the name server database changes.

28. The apparatus of claim 27, wherein the Border Switch is further configured to prevent the replication of RCSNs in one of the following ways:

(i) selecting a first Switch and a second Switch in the first or second fabric for distributing RCSNs in each fabric respectively;

(ii) statically configuring the fabrics; or

(iii) selecting a specified Switch to distribute the RCSNs.

29. The apparatus of claim 16, wherein the Switch enables communication between the end devices in the first fabric and the second fabric while maintaining the unique Domain_IDs of each of the first set and the second set of end devices by:

(i) administratively partitioning the domain number space across the fabrics; or (ii) associating a range of Domain_IDs to be used only for Inter-VSAN routing.